CONTEXT-AWARE

INFORMATION RETRIEVAL

Peter Brown and Gareth Jones

Dept of Computer Science
Univ. of Exeter, UK

Context-awareness as a discipline Compare two disciplines: word-processing and context-awareness. **Word processing: relates directly to a user need. a loosely defined term. its meaning changes over time. the basics are well understood. Context-wareness: must be a (seamless?) part of a larger application. a precise definition is at the end of the rainbow. the basics are poorly understood. Focus of the talk Two aspects of context-awareness: (1) Proactiveness. (2) How context changes. We have concentrated on CAR (Context-Aware Retrieval) of information. Two established retrieval disciplines: IR (Information Retrieval): one user, different query every time, large number of (fairly static) documents. IF (Information Filtering): many simultaneous users, same query every time, one document at a time. Our paper on relationship between IR/IF and CAR is at**

Three basic elements: (1) User's current context; perhaps many users. (2) A collection of documents to be retrieved from. [[(3) The recipient, here assumed to be the user.]] Proactiveness Proactiveness can be in element (1) and/or (2). e.g.: (1) setting all or part of the user's context via sensors. (2) attaching to a document a *triggering condition*, **which triggers the document when the triggering condition matches the user's context. We believe that in most applications proactiveness will need to be done intelligently: (1) Sensors are too low level. (2) Algorithms for matching trigger conditions need to be intelligent. Basic needs for all types of retrieval: Efficiency. Effectiveness: precision and (more important) relevance. Some CAR needs can be met by IR/IF techniques. The way context changes CAR is harder than IR/IF because: Many users. Many documents. Everything is potentially**

dynamic. Need for continuous updating. Need for speed. CAR is harder than the IR/IF "grand challenge"? The saving grace is that the current context may be changing gradually and partly predictably. This can be exploited for: Efficiency. Use of caches. Extrapolation (c.f. guessing future cellphone cells). Conclusions For CAR: Proactive behaviour needs sophisticated algorithms, in the same way that IR/IF does. Some applications will only be feasible if change is gradual and partly predicatable. Do these conclusions apply in general to context-aware applications?